IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Davide MANDATO et al.

Filed: Filed Concurrently Herewith

Title of Invention: HIGH-LEVEL INTERFACE FOR QoS-BASED MOBILE MULTIMEDIA APPLICATIONS

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Mailing Label Number: EV001579263US

Date of Deposit: December 6, 2001

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PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Box Patent Application (35 U.S.C. 111)
Washington, D.C. 20231

Sir:

Before the issuance of the first Office Action, please amend the above-identified application as follows:

IN THE CLAIMS:

Please amend claims 4-8, 10, 14, 15, 17, 18, 20-22, 27-31, 33, 37, 38, 40, 41, 43-45 by rewriting the same as follows:

4. (Amended) Processing system according to claim 2,

characterized in,

that the hierarchical finite state machines comprise controllable states in the context of streams at the lowermost level.

5. (Amended) Processing system according to claim 2,

characterized in,

that quality-of-service synchronisation is provided so as to ensure that some user's given constraints on quality-of-service are globally enforced throughout a given set of streams.

6. (Amended) Processing system according to claim 1,

characterized in,

that the specification of the quality-of-service contracts comprises hysteresis parameters for the transition between quality-of-service states.

7. (Amended) Processing system according to claim 1,

characterized in,

that the specification of the quality-of-service contracts comprises utility parameters defining user's perceived utility factors associated with the respective quality-of service contract.

8. (Amended) Processing system according to claim 1,

characterized by

an application handler unit (104) offering said application programming interface (102) for providing quality-of-service aware mobile multimedia applications (101) with the possibility of managing network connections with other applications.

10. Processing system according to claim 8,

characterized in,

that the application handler unit (104) operates on the basis of a data model comprising streams, quality-of-service context, quality-of-service associations and adaptation paths modeled as hierarchical finite state machines.

14. (Amended) Processing system according to claim 11,

characterized in,

that the chain controller (109) monitors and controls the local resources required to process the given stream by using resource managers (110).

15. (Amended) Processing system according to claim 11,

characterized by

a quality-of-service broker (106) for managing overall local resources by managing the whole set of streams via the chain controllers (109).

17. (Amended) Processing system according to claim 15,

characterized in,

that the quality-of-service broker (106) controls end-to-end quality-of-service negotiation by using a session manager (116).

18. (Amended) Processing system according to claim 15,

characterized in,

that the quality-of-service broker (106) includes further functionality for downloading plug-ins (107) corresponding to a given version of a data model which can not be handled by the application handler unit (104).

20. (Amended) Processing system according to claim 11,

characterized in,

that the application handler unit (104) and the various instances of the chain controller (109) are forming an application handler cluster (103).

21. (Amended) Processing system according to claim 20,

characterized in,

that the application handler cluster (103) and the quality-of-service broker cluster (105) are included in one open distributed processing capsule.

22. (Amended) Processing system according to claim 20,

characterized in,

that the application handler cluster (103) and the quality-of-service broker cluster (105) are included in separate open distributed processing capsules.

27. (Amended) Pieces of software according to claim 25,

characterized in,

that the hierarchical finite state machines comprise controllable states in the context of streams at the lowermost level.

28. (Amended) Pieces of software according to claim 25,

characterized in,

that quality-of-service synchronisation is provided so as to ensure that some user's given constraints on quality-of-service are globally enforced throughout a given set of streams.

29. (Amended) Pieces of software according to claim 24,

characterized in,

that the specification of the quality-of-service contracts comprises hysteresis parameters for the transition between quality-of-service states.

30. (Amended) Pieces of software according to claim 24,

characterized in,

that the specification of the quality-of-service contracts comprises utility parameters defining user's perceived utility factors associated with the respective quality-of-service contract.

31. (Amended) Pieces of software according to claim 24,

characterized by,

an application handler unit (104) offering said application programming interface (104) for providing quality-of-service aware mobile multimedia applications (201) with the possibility of managing network connections with other applications.

33. (Amended) Pieces of software according to claim 31,

characterized in,

that the application handler unit (104) operates on the basis of a data model comprising streams, quality-of-service context, quality-of-service associations and adaptation paths modeled as hierarchical finite state machines.

37. (Amended) Pieces of software according to claim 34,

characterized in,

that the chain controller (109) monitors and controls the local resources required to process the given stream by using resource managers (110).

38. (Amended) Pieces of software according to claim 34,

characterized by

a quality-of-service broker (106) for managing overall local resources by managing the whole set of streams via the chain controllers (109).

40. (Amended) Pieces of software according to claim 38,

characterized in,

that the quality-of-service broker (106) controls end-to-end quality-of-service negotiation by using a session manager (116).

41. (Amended) Pieces of software according to claim 38,

characterized in,

that the quality-of-service broker (106) includes further functionality for downloading plug-ins corresponding to a given version of a data model which can not be handled by the application handler unit (104).

43. (Amended) Pieces of software according to claim 34,

characterized in,

that the application handler unit (104) and the various instances of the chain controller (109) are forming an application handler cluster (103).

44. (Amended) Pieces of software according to claim 42,

characterized in,

that the application handler cluster (103) and the quality-of-service broker cluster (105) are included in one open distributed processing capsule.

45. (Amended) Pieces of software according to claim 42,

characterized in,

that the application handler cluster (103) and the quality-of-service broker cluster (105) are included in separate open distributed processing capsules.

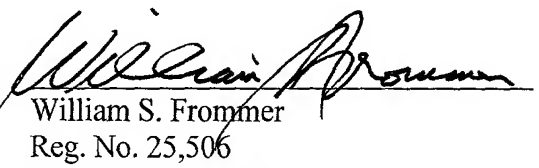
REMARKS

Claims 1-16 remain in the application. Claims 4-8, 10, 14, 15, 17, 18, 20-22, 27-31, 33, 37, 38, 40, 41, 43-45 have been amended to eliminate multiple dependencies. Attached hereto is

a marked up version of the changes made to claims 4-8, 10, 14, 15, 17, 18, 20-22, 27-31, 33, 37, 38, 40, 41, 43-45 by the current amendment. The attached page is captioned **"Version with markings to show changes made."** The filing fee has been calculated based upon these amendments to the claims.

Respectfully submitted,

FROMMER LAWRENCE & HAUG LLP
Attorneys for Applicants

By: 

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the claims:

4. (Amended) Processing system according to claim 2 ~~or 3~~,

characterized in,

that the hierarchical finite state machines comprise controllable states in the context of streams at the lowermost level.

5. (Amended) Processing system according to claim 2, ~~3 or 4,~~

characterized in,

that quality-of-service synchronisation is provided so as to ensure that some user's given constraints on quality-of-service are globally enforced throughout a given set of streams.

6. (Amended) Processing system according to claim 1 ~~one of the claims 1 to 5~~,

characterized in,

that the specification of the quality-of-service contracts comprises hysteresis parameters for the transition between quality-of-service states.

7. (Amended) Processing system according to claim 1 ~~one of the claims 1 to 6~~,

characterized in,

that the specification of the quality-of-service contracts comprises utility parameters defining user's perceived utility factors associated with the respective quality-of service contract.

8. (Amended) Processing system according to claim 1 ~~one of the claims 1 to 7~~,

characterized by

an application handler unit (104) offering said application programming interface (102) for providing quality-of-service aware mobile multimedia applications (101) with the possibility of managing network connections with other applications.

10. Processing system according to claim 8 ~~or 9~~,

characterized in,

that the application handler unit (104) operates on the basis of a data model comprising streams, quality-of-service context, quality-of-service associations and adaptation paths modeled as hierarchical finite state machines.

14. (Amended) Processing system according to claim 11, ~~12 or 13,~~

characterized in,

that the chain controller (109) monitors and controls the local resources required to process the given stream by using resource managers (110).

15. (Amended) Processing system according to claim 11 ~~one of the claims 11 to 14~~,

characterized by

a quality-of-service broker (106) for managing overall local resources by managing the whole set of streams via the chain controllers (109).

17. (Amended) Processing system according to claim 15 ~~or 16~~,

characterized in,

that the quality-of-service broker (106) controls end-to-end quality-of-service negotiation by using a session manager (116).

18. (Amended) Processing system according to claim 15, ~~16 or 17,~~

characterized in,

that the quality-of-service broker (106) includes further functionality for downloading plug-ins (107) corresponding to a given version of a data model which can not be handled by the application handler unit (104).

20. (Amended) Processing system according to claim 11 ~~one of the claims 11 to 19~~,

characterized in,

that the application handler unit (104) and the various instances of the chain controller (109) are forming an application handler cluster (103).

21. (Amended) Processing system according to claim ~~19 or~~ 20,

characterized in,

that the application handler cluster (103) and the quality-of-service broker cluster (105) are included in one open distributed processing capsule.

22. (Amended) Processing system according to claim ~~19 or~~ 20,

characterized in,

that the application handler cluster (103) and the quality-of-service broker cluster (105) are included in separate open distributed processing capsules.

27. (Amended) Pieces of software according to claim 25 ~~or 26~~,

characterized in,

that the hierarchical finite state machines comprise controllable states in the context of streams at the lowermost level.

28. (Amended) Pieces of software according to claim 25, ~~26 or 27,~~

characterized in,

that quality-of-service synchronisation is provided so as to ensure that some user's given constraints on quality-of-service are globally enforced throughout a given set of streams.

29. (Amended) Pieces of software according to claim 24 ~~one of the claims 24 to 28~~,

characterized in,

that the specification of the quality-of-service contracts comprises hysteresis parameters for the transition between quality-of-service states.

30. (Amended) Pieces of software according to claim 24 ~~one of the claims 24 to 29~~,

characterized in,

that the specification of the quality-of-service contracts comprises utility parameters defining user's perceived utility factors associated with the respective quality-of-service contract.

31. (Amended) Pieces of software according to claim 24 ~~one of the claims 24 to 30~~,

characterized by,

an application handler unit (104) offering said application programming interface (104) for providing quality-of-service aware mobile multimedia applications (201) with the possibility of managing network connections with other applications.

33. (Amended) Pieces of software according to claim 31 ~~or 32~~,

characterized in,

that the application handler unit (104) operates on the basis of a data model comprising streams, quality-of-service context, quality-of-service associations and adaptation paths modeled as hierarchical finite state machines.

37. (Amended) Pieces of software according to claim 34, ~~35 or 36,~~

characterized in,

that the chain controller (109) monitors and controls the local resources required to process the given stream by using resource managers (110).

38. (Amended) Pieces of software according to claim 34 ~~one of the claims 34 to 37~~,

characterized by

a quality-of-service broker (106) for managing overall local resources by managing the whole set of streams via the chain controllers (109).

40. (Amended) Pieces of software according to claim 38 ~~or 39~~,

characterized in,

that the quality-of-service broker (106) controls end-to-end quality-of-service negotiation by using a session manager (116).

41. (Amended) Pieces of software according to claim 38, ~~39 or 40,~~

characterized in,

that the quality-of-service broker (106) includes further functionality for downloading plug-ins corresponding to a given version of a data model which can not be handled by the application handler unit (104).

43. (Amended) Pieces of software according to claim 34 ~~one of the claims 34 to 42,~~

characterized in,

that the application handler unit (104) and the various instances of the chain controller (109) are forming an application handler cluster (103).

44. (Amended) Pieces of software according to claim 42 ~~or 43,~~

characterized in,

that the application handler cluster (103) and the quality-of-service broker cluster (105) are included in one open distributed processing capsule.

45. (Amended) Pieces of software according to claim 42 ~~or 43,~~

characterized in,

that the application handler cluster (103) and the quality-of-service broker cluster (105) are included in separate open distributed processing capsules.